

heterochromatin is an organon regulating the production of the proteins of the cytoplasm. This regulation works via the nucleolus.¹³

In the course of this research, Caspersson differentiated the roles of DNA (ribodesose nucleotides), which he took to be necessary for the synthesis of proteins in the genetic material, and RNA (ribose nucleotides), which figured in the synthesis of cytoplasmic proteins. He found that the “*rapidity* of the protein synthesis in the living bacteria is a simple, almost linear function of the amount of ribose nucleotides.” He concluded that this “forms one of the best proofs, not only for the interplay of nucleotides and proteins at the protein synthesis but also for the general validity of this mechanism.”¹⁴ Caspersson identified such increases in RNA both in the interphase chromosome, in the nucleolus, and in the cytoplasm. Although drawing a correlation between RNA presence in these locations and protein synthesis, he remained vague about the role played by RNA and continued to construe self-reproducing proteins as the genetic material. He also localized protein synthesis in the nucleus and offered no account of the role of the RNA found in the cytoplasm at the same time as he took the newly made proteins to be diffusing into the cytoplasm. In the course of this investigation, Caspersson also investigated viruses and concluded that they took over the normal protein synthesis mechanisms of the host cells.¹⁵

In addition to his own research, Caspersson began working during the war with several younger researchers, including Holger Hydén, Bo Thorell,

¹³ Letter to H. M. Miller, 1 September 1940, Folder 8, Box 1, Series 800, RG 1.1, Rockefeller Foundation Archives, RAC.

¹⁴ Letter to Frank Blair Hanson on 8 August 1944, p. 2, Folder 9, Box 2, Series 800D, RG 1.1, Rockefeller Foundation Archives, RAC.

¹⁵ Caspersson performed most of this research in the period 1938–45. After that, he focused even more on instrument development and offered little in the way of new findings. Prior to renewing his funding in 1956, the Rockefeller Foundation conducted a review of his work, soliciting evaluations from Francis Schmitt, Alfred Mirsky, H. Stanley Bennett, and Barry Commoner. Warren Weaver expressed surprise at the negativity of these assessments and provided Caspersson one last grant at a much smaller amount than Caspersson had requested. Mirsky’s evaluation is instructive: “In 1943 it seemed as if Caspersson’s work was highly imaginative and also precise. As time went by it became apparent that Caspersson’s claims for accuracy were on the whole spurious. . . . About all that has remained of this work is the suggestion that ribonucleic acids are in some way correlated with protein synthesis. This fruitful idea was advanced independently by Brachet, and it is worth noting that Brachet’s observations were made by a simple, qualitative staining procedure – quite a contrast to the imposing instrumentation of Caspersson. For the past fifteen years Caspersson has produced little, if anything of significance” (letter to Gerald R. Pomerat, December 4, 1956; Folder Karolinska Institutet Cell Research, 1956–7, Series 800D, RG, Rockefeller Foundation Archives, RAC). While also noting the dearth of recent biological advances by Caspersson, Bennett commented that Caspersson’s institute had trained several important junior scientists.